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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,747	02/03/2004	Choung-Ku Chon	4591-354	3655

20575 7590 11/29/2005

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EXAMINER	
ZERVIGON, RUDY	
ART UNIT	PAPER NUMBER
1763	

DATE MAILED: 11/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/771,747	CHON ET AL.	
	Examiner	Art Unit	
	Rudy Zervigon	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) *11-23* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, claims 1-10 in the reply filed on September 20, 2005 is acknowledged.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Campbell; Bryant A. et al. (US 4547404 A) in view of Katayama; Katsuo et al. (US 5529632 A). Campbell teaches a diffusion furnace (Figure 1; column 4, line 55 - column 5, line 29) for use in fabricating semiconductor devices, the furnace comprising: a support member (42; Figure 2; column 4, line 55 - column 5, line 29); a process chamber (4; Figure 1,2; column 4, line 55 - column 5, line 29) installed on the support member (42; Figure 2; column 4, line 55 - column 5, line 29); a sealing member (50; Figure 2) for sealing the process chamber (4; Figure 1,2; column 4, line 55 - column 5, line 29) from the outside, the sealing member (50; Figure 2) being inserted between the support member (42; Figure 2; column 4, line 55 - column 5, line 29) and the process chamber (4; Figure 1,2; column 4, line 55 - column 5, line 29); and a cooling system (62, 64; Figure 2; column 4, line 55 - column 5, line 29) for cooling the sealing member (50; Figure 2), the cooling system (62, 64; Figure 2; column 4, line 55 - column 5, line 29) including a first fluid

passage (64; Figure 2) in which a first fluid flows for cooling the sealing member (50; Figure 2), the first fluid passage (64; Figure 2) being formed within the support member (42; Figure 2; column 4, line 55 - column 5, line 29)

Campbell further teaches:

i. Campbell's diffusion furnace (Figure 1; column 4, line 55 - column 5, line 29) of claim 1, wherein the sealing member (50; Figure 2) is an O-ring, as claimed by claim 3

ii. Campbell's diffusion furnace (Figure 1; column 4, line 55 - column 5, line 29) of claim 1, wherein the first fluid passages are substantially ring-shaped - claim 4

Campbell does not teach that Campbell's an additional second fluid passage in which a second fluid flows for cooling the sealing member (50; Figure 2) when supplying the first fluid is interrupted, the second fluid passage being formed within the support member (42; Figure 2; column 4, line 55 - column 5, line 29).

Campbell further does not teach:

i. Campbell's diffusion furnace (Figure 1; column 4, line 55 - column 5, line 29) of claim 1, wherein Campbell's cooling system (62, 64; Figure 2; column 4, line 55 - column 5, line 29) includes: Campbell's first supply conduit (62; Figure 2; column 4, line 55 - column 5, line 29) connected to Campbell's first inflow port (62/64 interface; Figure 2; column 4, line 55 - column 5, line 29) formed at one end of Campbell's first fluid passage (64; Figure 2); a return conduit connected to a first outflow port formed at the other end of Campbell's first fluid passage (64; Figure 2); a temperature controller, to which the first supply conduit (62; Figure 2; column 4, line 55 - column 5, line 29) and the return conduit are connected, for controlling the temperature of the first fluid supplied to the first supply conduit (62; Figure 2; column 4, line 55 - column 5,

line 29); a second supply conduit connected to a second inflow port formed at one end of the second fluid passage; and an exhaust conduit connected to a second outflow port formed at the other end of the second fluid passage, as claimed by claim 2

ii. Campbell's diffusion furnace (Figure 1; column 4, line 55 - column 5, line 29) of claim 4, wherein the second fluid passage is formed substantially coplanar with Campbell's first fluid passage (64; Figure 2), as claimed by claim 5

iii. Campbell's diffusion furnace (Figure 1; column 4, line 55 - column 5, line 29) of claim 4, wherein Campbell's first fluid passage (64; Figure 2) and the second fluid passage are disposed one over the other, as claimed by claim 6

iv. Campbell's diffusion furnace (Figure 1; column 4, line 55 - column 5, line 29) of claim 1, wherein the first fluid has a higher boiling point than the second fluid, as claimed by claim 7 – However, applicant's claim requirement is a claim requirement of intended use of the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey,152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).

v. Campbell's diffusion furnace (Figure 1; column 4, line 55 - column 5, line 29) of claim 1, wherein the second fluid is cooling water, as claimed by claim 8. However, applicant's claim requirement is a claim requirement of intended use of the pending apparatus claims. Further, it

has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey,152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).

vi. Campbell's diffusion furnace (Figure 1; column 4, line 55 - column 5, line 29) of claim 1, wherein the first fluid is an organic liquid, as claimed by claim 9. However, applicant's claim requirement is a claim requirement of intended use of the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey,152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).

vii. Campbell's diffusion furnace (Figure 1; column 4, line 55 - column 5, line 29) of claim 1, wherein the first fluid is ethylene glycol, as claimed by claim 10. However, applicant's claim requirement is a claim requirement of intended use of the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at

409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey,152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).

Katayama teaches a coolant circuit (11a, 12, 12a; Figure 1) including a temperature controller (21c,b; Figure 1) for controlling reactor skin temperature (column 5, line 52 – column 6, line 4).

It would have been obvious to one of ordinary skill in the arta at the time the invention was made to add plural cooling conduits to Campbell's support member (42; Figure 2; column 4, line 55 - column 5, line 29) and for Campbell to add Katayama's temperature controller (21c,b; Figure 1) to Campbell's apparatus.

Motivation to add plural cooling conduits to Campbell's support member (42; Figure 2; column 4, line 55 - column 5, line 29) is to enhance cooling as taught by Campbell's additional second fluid passage (68; Figure 2) and for Campbell to add Katayama's temperature controller (21c,b; Figure 1) to Campbell's apparatus is for controlling depositions on chamber surfaces as taught by Katayama (column 7; lines 49-65).

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

US 6746240 B2

US 5662470 A

US 5632820 A

US 5578132 A

US 5540782 A

US 5484484 A

US 5360336 A

US 5320680 A

US 5318633 A

US 5207573 A

US 5108792 A

US 4545327 A

US 4539933 A

US 4179530 A

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272.1442. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official fax phone number for the 1763 art unit is (703) 872-9306. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Parviz Hassanzadeh, at (571) 272-1435.